

Title (en)

Vertical field-effect transistor having a high breakdown voltage and a small on-resistance.

Title (de)

Vertikal-Feldeffekttransistor mit hoher Durchbruchsspannung und niedrigem Anschaltwiderstand.

Title (fr)

Transistor vertical à effet de champ avec haute tension de claquage et faible résistance à l'état conducteur.

Publication

**EP 0358389 A1 19900314 (EN)**

Application

**EP 89308664 A 19890825**

Priority

JP 21185888 A 19880825

Abstract (en)

A vertical MOSFET includes a base region (3) formed on the surface of a drain region (2), a source region (4) provided in the base region (3), a second semiconductor region (5) provided on the surface of the drain region between the base regions (3), the second semiconductor region (5) having the same conductivity type as the drain region (2) and an impurity concentration higher than that of the drain region (2), a third semiconductor region (3) of the opposite conductivity type provided in the second semiconductor region (5), a gate electrode (6) provided on the base region (3) and an insulating film (29) provided on the second semiconductor region (8).

IPC 1-7

**H01L 29/06**; **H01L 29/08**; **H01L 29/784**

IPC 8 full level

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CPC (source: EP US)

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Citation (search report)

- [A] EP 0279403 A2 19880824 - NEC CORP [JP]
- [A] EP 0118921 A2 19840919 - NISSAN MOTOR [JP]
- [A] DE 3346286 A1 19840628 - INT RECTIFIER CORP [US]

Cited by

US6030870A; US5900662A; US6090669A; US5798554A; US6111297A; EP0729186A1; EP0568692A4; US5841167A; US6051862A; US5981343A; US5981998A; US5985721A; US6548864B2; US6492691B2; US6228719B1; WO9842027A1; US6468866B2; US6566690B2

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